

# AU InforMed

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Guest Editors: Jillian Farrow and Jake Chesnutt, Pharm.D. Candidates 2023; Bernie Olin, Pharm.D.



## Key Inforbits

- What is eczema?
- Atopic dermatitis
- Clinical presentation
- Assessment of severity
- Triggers for atopic dermatitis
- Living with atopic dermatitis
- Treatment options



## October is Eczema Awareness Month

<https://nationaleczema.org/blog/eam-2019-preview/>

## What is eczema?

Eczema is an umbrella term for several types of non-contagious skin inflammation that can cause itching, irritation, dry skin, rashes, scaly patches, blisters, and skin infections when left untreated. There are seven types of eczema with unique characteristics.<sup>1,2</sup>

**Table 1. The seven types of eczema<sup>2</sup>**

Type of eczema	Characteristics
Atopic dermatitis	Causes inflammation, dryness, and itching
Contact dermatitis	Also called allergic contact dermatitis. Caused by environmental allergens and irritants
Dyshidrotic eczema	Dries out the skin and causes a burning sensation, rashes, and blisters
Seborrheic eczema	An inflammatory type of eczema that affects the scalp
Nummular eczema	Consists of small, rounded lesions all over the body, but especially on the arms and legs
Neurodermatitis	Affects small patches of skin, making them itchy and scaly
Stasis dermatitis	A skin discoloration on the legs that looks similar to varicose veins

## Atopic dermatitis

Atopic dermatitis is a chronic, pruritic inflammatory type of eczema.<sup>1</sup> According to the National Eczema Association, atopic dermatitis is the most common form of eczema. In the United States, 9.6 million children and 16.5 million adults suffer from atopic dermatitis, and those numbers are increasing each year. Patients with atopic dermatitis have been shown to have a mutation of the gene that is responsible for creating a protein called filaggrin, which helps the body to maintain a healthy and protective skin barrier. Without a protective skin barrier, moisture escapes the skin, and bacteria and viruses can enter. This causes patients with atopic dermatitis to be more prone to infection.<sup>2</sup> Atopic dermatitis often consists of periods of exacerbations followed by periods of remission and can overlap with other types of eczema. The onset of atopic dermatitis is most common between 3 and 6 months of age. The condition continues into adulthood for 10 to 30% of children who are diagnosed.<sup>3</sup> Onset after the age of 30 is uncommon and is typically caused by exposure to harsh chemicals or repeated skin trauma. Atopic dermatitis is often associated with family history of atopy which consists of eczema, allergic rhinitis, and asthma, with 70% of patients having a positive family history. Environmental factors such as climate, urban vs. rural area, water hardness, and early exposure to microorganisms are thought to increase the risk of atopic dermatitis.<sup>1,4</sup>

## Clinical presentation<sup>1-3</sup>



<https://www.istockphoto.com/illustrations/eczema>

The clinical presentation of atopic dermatitis differs depending on patient age. In infants, the common presentation consists of a patchy papular skin rash that typically affects the cheeks, forehead, scalp, chin, and behind the ears, which may progress to red, scaly, and oozing skin. As infants begin crawling, the lesions may spread to the extremities. Atopic dermatitis lesions are often itchy, causing infants to become irritable while trying to scratch the lesions to experience relief. In children, the skin often appears dry, rough, and cracked; bleeding may be caused by excessive scratching. This uncontrollable itching leads to sleep disruption occurring in 60% of children with atopic dermatitis. Lichenification, or thickening and hyperpigmentation of the skin, is common in older children. Lichenification typically occurs in folds of the skin such as the elbow and knee as well as on the forehead. Crusting and picking of the skin are also common in

children. In adults, lesions are more diffuse with underlying erythema. The face is often involved with dry and scaly patches. A brown macular ring around the neck which indicates a localized deposit of amyloid may be present in some adults.

Atopic dermatitis is diagnosed based on clinical presentation. There are no objective diagnostic tests to confirm its presence. Serum IgE levels may be elevated during exacerbations of atopic dermatitis but are not elevated upon initial presentation. In some patients, particularly young females, IgE-mediated sensitization may never occur. Elevated IgE should not be used for diagnosis due to elevated levels being associated with other nonatopic conditions. Common signs and symptoms used in the diagnosis of atopic dermatitis include pruritus, early age of onset, skin lesions that vary with age, chronic or relapsing patches of dry skin, and a personal or family history of asthma or allergic rhinitis. Pruritus, which is itching of the skin, is considered the hallmark symptom of atopic dermatitis, and a diagnosis cannot be made without it being present. More than 85% of people with atopic dermatitis experience itching that causes great distress.

## Assessment of severity

Atopic dermatitis can be classified as mild, moderate, or severe based on clinical presentation.<sup>4</sup>

**Table 2. Classifying the severity of atopic dermatitis**

<b>Mild</b>	Areas of dry skin with or without redness with infrequent itching Little impact on everyday activities, sleep, and quality of life
<b>Moderate</b>	Areas of red, dry skin with frequent itching With or without localized thickening of the skin Moderate impact on everyday activities, sleep, and quality of life
<b>Severe</b>	Widespread areas of red, dry skin with continuous itching With or without excoriation, thickening of the skin, bleeding, oozing, cracking, and pigmentation Severe impact on everyday activities, sleep, and quality of life

## Triggers for atopic dermatitis

Atopic dermatitis can be triggered by heat and perspiration, wool, emotional stress, certain foods, alcohol, and upper respiratory tract infections. Exposure to aeroallergens such as dust mites, pollens, molds, cigarettes, fragrance, and animal dander may also exacerbate multiple symptoms of atopic dermatitis. There is no role for allergy testing in atopic dermatitis, but negative results can help rule out certain allergens as triggers.<sup>1</sup>

## Living with atopic dermatitis<sup>1,2,5</sup>

Atopic dermatitis has been shown to have substantial effects on social and psychological well-being. Patients with atopic dermatitis report pruritus being their most bothersome symptom that affects their quality of life the most. Itching can be so severe that patients have difficulty concentrating on their daily tasks. When patients experience itching at night leading to improper sleep hygiene, they can feel groggy and tired during the day. Children and adolescents with atopic dermatitis are at an increased risk for attention-deficit hyperactivity disorder, and adults are more likely to experience depression than those without the disease. Family and

friends of patients with atopic dermatitis can also be affected by their poor quality of life. Patients with atopic dermatitis are more prone to secondary skin infections due to having a weakened skin barrier and excoriations caused by excessive scratching. These patients are at an increased risk for staphylococci and streptococci infections as well as viral infections such as herpes simplex and molluscum contagiosum.

## Treatment options

Currently, there is no cure for atopic dermatitis. It can be difficult to treat in some cases, but experts' knowledge of the disease is continuing to grow, and there are many different treatment options and approaches.<sup>2</sup> Treatment goals include controlling itching, eliminating triggers and aeroallergens, minimizing stress, providing social and psychosocial therapy when necessary, minimizing adverse effects of medications, and treating any secondary skin infections. Successful management of atopic dermatitis can take days to weeks depending on the severity. The ultimate goal is to provide enough control so that quality of life is minimally affected. It is important for patients to understand that management strategies may require changes throughout the course of disease. Treatment regimens consisting of both nonpharmacologic and pharmacologic therapies are most successful. Reactive therapy is recommended for mild disease, and proactive therapy should be used in moderate or severe disease.<sup>1</sup>

### Nonpharmacologic treatment<sup>1,2-3,6</sup>

- Fragrance-free occlusive moisturizers provide an oily layer on the skin to maintain moisture and reduce itching
  - Examples: Aveeno Baby Soothing Relief Moisture Cream, CeraVe lotion, Cetaphil, Neutrogena Hand Cream, and Vanicream products
- Luke-warm baths followed by gentle towel drying can help to reduce itching
- Fragrance-free non-soap cleansers with neutral to low pH are non-irritating to atopic dermatitis
  - Examples: CeraVe facial cleansers (Foaming, Hydrating), CeraVe Eczema Body Wash, Cetaphil Gentle Skin Cleanser, Free and Clear Liquid Cleanser, Spectro Derm Cleanser, and Trisan Antibacterial Skin Cleanser
- Mild, fragrance-free laundry detergent can prevent atopic dermatitis flares caused by pungent fragrances
- Short fingernails help prevent scratching of the skin which can lead to lacerations and infection
- Identifying and avoiding known allergens, stressors, and triggers can prevent flare-ups
- Avoiding alcohol-containing skin care products is important as these can dry out the skin barrier further

### Pharmacologic treatment<sup>3,5-8</sup>

There are numerous topical and systemic pharmacologic agents for the treatment of atopic dermatitis, and current treatment recommendations are based on disease severity. The duration of treatment is also based on severity and persistence of symptoms. Topical corticosteroids are the first-line standard of care and treatment of choice for atopic dermatitis. The choice of corticosteroid potency is dependent upon patient age, body area involved, and

the degree of skin inflammation. Low potency formulations are typically used in mild disease while high and ultra-high potency formulations are reserved for moderate disease. Topical calcineurin inhibitors are considered second-line therapy for the treatment of mild to moderate disease. Topical corticosteroids and calcineurin inhibitors are mainstay therapies for controlling pruritus and may be used proactively to maintain symptom remission. Third-line treatments for mild to moderate disease include topical crisaborole and the topical Janus kinase inhibitor, ruxolitinib. Patients with persistent, moderate to severe disease despite optimal topical therapy require systemic treatment. Monoclonal antibodies are considered first-line systemic therapy for the treatment of moderate to severe atopic dermatitis, with dupilumab being the monoclonal antibody of choice. Oral Janus kinase inhibitors are appropriate second-line therapy in patients who have failed monoclonal antibody therapy. The immunosuppressive agents cyclosporine and methotrexate may be utilized in patients who do not respond to other systemic therapy or in patients with severe refractory disease. Finally, azathioprine and the systemic corticosteroid prednisone are reserved for the treatment of severe refractory atopic dermatitis. Hospitalization is often necessary when treating patients with severe refractory disease.

**Table 3. Pharmacologic therapy options for the treatment of atopic dermatitis<sup>1,3,6-11</sup>**

Drug class	Drug Name	Role in Therapy	Clinical Pearls
Topical corticosteroids	Desonide (Desonate; DesOwen; LoKara; Tridesilon; Verdeso)	Mild disease	Long-term use may lead to adrenal suppression and thinning of the skin
	Hydrocortisone (Cortizone-10; Hydrocort; Ala-Cort)		
	Fluocinolone (Capex; Derma-Smoothe; Synalar)	Moderate disease	
	Triamcinolone (Dermasorb TA; Kenalog; Oralone; Trianex; Triderm)		
	Betamethasone dipropionate (Alphatrex; Diprolene; Luxiq)		
Clobetasol (Clobex; Temovate; Olux)			

<b>Topical calcineurin inhibitors</b>	Tacrolimus (Protopic) Pimecrolimus (Elidel)	Mild to moderate disease	Require twice daily application Concerns have been raised by the FDA about possible links to cancer
<b>Selective phosphodiesterase 4 inhibitor</b>	Crisaborole (Eucrisa)	Mild to moderate disease	Safe for long-term use Efficacy remains uncertain due to strong placebo effect in trials
<b>Monoclonal antibodies</b>	Dupilumab (Dupixent) Tralokinumab (Adbry)	Moderate to severe disease	Useful in patients who have failed topical therapy Dupilumab has been associated with mild new-onset joint pain
<b>Janus kinase (JAK) inhibitors</b>	Ruxolitinib (Opzelura)	Mild to moderate disease	FDA approved in September 2021 for short-term treatment in patients ≥12 years of age
	Abrocitinib (Cibinqo)	Moderate to severe disease	Useful in patients whose disease is uncontrolled with monoclonal antibodies Increased risk of serious infection, heart attack or stroke, cancer, thrombosis, and death
	Upadacitinib (Rinvoq)		
<b>Immunosuppressant agents</b>	Cyclosporine (Gengraf; Neoral, SandIMMUNE)	Moderate to severe disease and severe refractory disease	Not recommended in infants and young children Monitoring of blood pressure and serum creatinine is necessary
	Methotrexate (Otrexup; Rasuvo; RediTrex; Trexall; Xatmep)		Safe for long-term use Requires 1 mg folic acid supplementation to reduce the risk of methotrexate toxicities
	Azathioprine (Azasan; Imuran)		Second-line systemic immunosuppressant agent for long-term treatment
<b>Systemic corticosteroid</b>	Prednisone (Rayos; Prednisone Intensol)	Severe refractory disease	A short course is useful when the use of oral cyclosporine is contraindicated

In addition to the treatment options listed in Table 3, many patients may also benefit from oral antihistamines when used as adjunct therapy to aid in sleep that is disturbed by pruritus. First generation antihistamines (diphenhydramine, hydroxyzine, and cyproheptadine) have been shown to be more effective than second generation antihistamines.<sup>12</sup>

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